DETERMINING WORKLOAD IN RELATION TO CREDITS AND NOTIONAL HOURS

As part of our planning for a module, we have to calculate workload in relation to credits and notional hours.

Credits and notional hours

The South African Qualifications Authority (SAQA) introduced the concept of credits related to 'notional hours' as part of a system of outcomes-based education (OBE). SAQA equates one credit with ten notional hours of learning. Notional hours are defined in terms of the amount of time it takes for the average student to achieve the learning outcomes. For contact institutions, the rule of thumb is two hours of time outside the classroom for every hour in the classroom when calculating notional hours. So, for a twelve-credit module the notional hours would be 120 and the amount of contact time would be 40 hours. If we use twelve-credit modules in distance education, how do we allocate the 120 notional hours? We shall look at the answer to this question in some detail.

One interesting aspect of notional hours is that the concept looks at workload from the students' perspective. We do not look at how much content we would like to teach but at how much time it takes the average student to achieve deep learning of the knowledge, skills, attitudes and values that are embodied in a particular module.

SAQA's formulation acknowledges that it is impossible to treat all students equally, hence the concept of the 'average student'. Students vary in innate abilities, background, educational achievements, etc. Each student will thus spend a different amount of time on a module but should be encouraged to move at a pace that meets the lecturer's expectations of the amount of work that should be completed by a certain stage of the module.

Practical work and service learning may increase the amount of time spent on a module but, as students are assessed during these sessions, the other types of assessment could be reduced to balance the situation.

Using clearly stated outcomes or competencies and calculating notional hours in relation to them is international good practice from Australia to India to the United States to the new European Union initiative (Tuning Educational Structures in Europe) in determining workload.

When working in a semester system we have to plan and estimate differently from when we are working in a year system. We have to ask ourselves if the average student really spends 120 notional hours on a twelve-credit module in a semester system if the way we plan the learning facilitation and assessment do not oblige him/ her to do so.

The steps in estimating workload for a twelve-credit module of 120 notional hours

STEP 1
Calculate the number of weeks students will have available and the number of hours per week that would entail for a twelve-credit module with 120 notional hours of work for the average student. For the first semester, for instance, a student might only enrol on the last day of registration and therefore have about twelve weeks for a twelve-credit module. That means

a commitment of ten hours a week for a 120 credit module between the beginning of February and the end of April. In a year model, students might have 32 weeks (February to September inclusive) and therefore would have to work 3.75 hours a week.

STEP 2
List all possible activities: reading, tasks/ activities, listening, viewing, tutorials, satellite, videoconferencing, group discussions, service learning, assignments, peer collaborative learning, interviews with counsellors for study or career guidance, online forums, etc. This can be done for each study unit for the purposes of developmental testing and in-text guidance of students, and for the module as a whole.

STEP 3
Calculate the reading load of guides, assignments, tutorial letters, textbooks, recommended reading. Here we have a number of benchmarks from research.

- Unisa research (Pretorius and Ribbens 2005; Matjila and Pretorius 2004; Pretorius and Bohlmann 2003) suggests that the average first-year student, from a background where reading was neglected, might be able to read fairly easy material at about 100 words per minute but with really low comprehension. This research also found that students coming from backgrounds where reading was promoted might be able to read twice as fast and comprehend two or three times more than the weak reader. (Note: Slower reading times do not imply improved comprehension; the reverse is actually true.) There are tools on computers nowadays to assess the readability of a text. Let us say that a Unisa study guide, carefully planned, written in Plain English, with clear illustrations and examples, and well-edited, was rated as easy reading for a first-year student. (We have to be careful here as the Unisa research shows that students could have the reading ability of twelve-year olds, not eighteen-year olds.) If we take 100 words per minute as a benchmark for easy texts, and 500 words per A4 page of text uninterrupted by diagrams or activities in a study guide, that would mean that the average student could read a page in five minutes and fifteen pages in an hour. Of course, the Unisa research indicates that they would only understand about a quarter of what they were reading. Also consider students' metacognitive abilities. An inexperienced student will keep on reading regardless of whether he or she understands. An expert learner will stop, re-read, try to map the text, try to find topic sentences, flag issues or contact a lecturer.
- The 1992 research from Indira Ghandi National Open University (IGNOU) gives the following benchmarks for 'study rate times' which include reading, rereading and note-taking (for fairly unskilled readers):
  - Easy: 100 words per minute
  - Fairly straightforward: 70 words per minute
  - A dense/ difficult text: 40 words per minute

  The research was conducted on Physics students and the benchmarks were reduced as follows for Physics texts:
  - Easy: 60 words per minute
  - Fairly straightforward: 40 words per minute
  - A dense/ difficult text: 25 words per minute
  - Difficult mathematical equation/ step: 1 minute per equation.

- The Central Queensland University estimates that 'a reasonable study rate ranges from less than 5 pages per hour for conceptually difficult text to about 10 pages an hour for reasonable text' (Nouwens 1997).
- Welch (1998) also gives data from the UK including the Open University (OU), that range from 8 to 20 pages an hour. In the UK most students probably have English as their primary language and that has to be factored into the higher reading speeds.

Based on this information, let us use five to ten pages an hour as a norm and 7.5 pages as the average for a first-year student, for whom English is not a primary language, studying a reading text with comprehension – reading and re-reading, and taking notes. It is then a question of looking at the number of pages in the guide and the textbook that are predominantly text and calculating the number of notional hours students would need to read those texts with comprehension. The number of words per page might differ for the study guide and the textbook. Do a quick calculation for each, using a page that contains mainly text. The time to understand complex diagrams that take up space and require additional processing can be calculated separately, as can the time to work on equations or other calculations.

Tool for calculating the workload for a module of twelve credits or 120 notional hours

What follows is a list of (potential) activities for a module (assuming 90% of students are using English as additional language).

Activities	Estimated student time in hours
Reading and comprehending study guide of 200 pages, including note-taking (at five to ten pages an hour; average of 7.5)	27
Reading and comprehending textbook of 200 pages, including note-taking (average of 7.5 pages an hour)	27
Reading and comprehending Tutorial Letter 101 of 50 pages (average of 7.5 pages an hour)	7
Completing activities in guide and reading feedback	20
Completing self-assessment in guide and reading feedback	4
Attending tutorials/ group visits/ satellite broadcasts/ videoconferences at learning centre (preparation and attendance) (Nadeosa benchmark: 10% of notional hours for contact)	(12)
Completing four assignments (five hours to produce 200 words, half on reading): (Nadeosa benchmark 15% of notional hours on formative assessment = eighteen hours) • Reading • Drafting and revision • Writing/ typing final copy	20
Reading and comprehending other tutorial letters	8
Listening to tape	(1)
Viewing a video	(1)
Participating in three online discussion forums (four substantial contributions per forum = two hours per forum plus reading others' contributions = two hours per forum = total of twelve)	(12)

Peer collaborative learning	(5)
Study/ career counselling	(1)
Practical/ laboratory work/ service learning	(12)
Revision	5
Examination	2
TOTAL	120
	(164)

Based on this estimate, the module is overloaded in terms of input from text so that a blended approach that includes multimedia and student support activities becomes impossible. There are activities and formative assessment opportunities, which is good, but the module caters only for the independent student who learns well from text. Students who learn better from interaction, practical opportunities or audio-visual media are disadvantaged.

STEP 4

Calculate the load of other activities. This can be done per study unit and then added up for the whole module. Nothing should remain hidden. Do not calculate all the tutorial letters as reading, for instance, if the final tutorial letter contains a mock examination paper that will take a student two hours to complete. Tutorials at learning centres may be optional but some students will enrol. The same applies to group visits. You also need to consider that students (hopefully) spend time preparing for contact sessions and that time has to be added.

Tool for estimating workload per study unit and conducting developmental testing

What follows is a list of activities for a single study unit of seventeen pages in a guide of 302 pages. Students also have to consult language reference books and the time is calculated into the list below. The module includes a tape with listening integrated into some study units but not the one used here. Tutors are also available at all learning centres for those who choose to use this service.

Actvities	Estimated student time in minutes
Reading and comprehending of seventeen pages at 7.5 pages in 60 minutes	136
Vocabulary study: 24 new words – writing own word list	24
Activity 1: writing	30
Activity 2: answering three questions	10
Activity 3: ticking a checklist	2
Activity 4: answering twenty multiple-choice comprehension questions	20
Reading checklist	2
Writing checklist	2
Studying an annotated text	5
Activity 5: Letter to the press	60
Consulting grammar reference book	30
Activity 6: grammar exercise	10
Reflection on unit	10

TOTAL	341
	(5.68 hours)

If all the study units are this labour intensive, students will need to devote 100 hours just to the study guide and its activities. The course also has four compulsory assignments (eighteen hours if calculated as 15% of total hours) and a two hour examination, which would complete the 120 notional hours for the average student. Students attending tutorials would be adding significantly to the time spent on the module, probably about 30 hours (one hour of preparation plus one hour of contact for fifteen classes).

STEP 5

Undertake developmental testing. The tool for estimating workload per study unit is the document that you need to use while conducting developmental testing with students. Freeman (2005:169) states that most ODL institutions use ten to twenty-five students with more in-depth responses from five to ten. He pointed out in a workshop at Unisa in early 2005 that new research is showing that five students would give sufficient data as after that the responses tend to become repetitive. Study units can be sent out to students or the lecturer can sit with each student as he or she works through the study unit. The latter approach has the advantage that the lecturer can note if a student skips activities or needs to resort to a dictionary, etc. The lecturer can use a think-aloud protocol, with the student commenting on difficulty level, etc. and ask questions as necessary. The student needs to know that the purpose is to test the material not him or her.

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